

WHAT IS CLAIMED IS:

- 1 1. A head-up display system comprising:
2 a transparent plate;
3 a liquid crystal display for generating a display light of
4 information; and
5 a laminate of first and second $\lambda/4$ films, said laminate
6 being placed on a display panel of said liquid crystal display
7 such that said display light is changed into S-polarized light or
8 P-polarized light and that said S-polarized light or said
9 P-polarized light is incident on said transparent plate.
- 1 2. A head-up display system according to claim 1, wherein
2 said display light is incident on said transparent plate at
3 Brewster's angle.
- 1 3. A head-up display system according to claim 1, wherein,
2 when a polarization direction of said display light is inclined at
3 a first angle to a horizontal axis of said display panel, said first
4 $\lambda/4$ film is disposed such that a fast axis of said first $\lambda/4$ film
5 has an inclination at a second angle relative to a horizontal
6 axis of said first $\lambda/4$ film, said second angle being a total of
7 said first angle and 45 degrees.
- 1 4. A head-up display system according to claim 3, wherein
2 said second $\lambda/4$ film is disposed such that a fast axis of said
3 second $\lambda/4$ film has an inclination at a third angle of -45 or
4 135 degrees relative to a horizontal axis of said second $\lambda/4$
5 film, thereby changing said display light into said S-polarized
6 light.
- 1 5. A head-up display system according to claim 3, wherein
2 said second $\lambda/4$ film is disposed such that a fast axis of said

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3 second $\lambda/4$ film has an inclination at a third angle of -135 or
4 45 degrees relative to a horizontal axis of said second $\lambda/4$ film,
5 thereby changing said display light into said P-polarized light.

1 6. A head-up display system according to claim 1, further
2 comprising an optical rotatory film for rotating a polarization
3 direction of said S-polarized light or said P-polarized light by
4 an angle of 90 degrees.

1 7. A head-up display system according to claim 6, wherein
2 said optical rotatory film is a liquid crystal polymer that is in
3 twisted nematic orientation under a liquid crystal condition
4 and is in a glassy state at a temperature lower than liquid
5 crystal transition point of said liquid crystal polymer.

1 8. A head-up display system according to claim 6, wherein
2 said optical rotatory film has a thickness of $0.5\text{-}20\ \mu\text{m}$.

1 9. A head-up display system according to claim 1, wherein,
2 when said S-polarized light is incident on said transparent
3 plate, a semi-transparent reflective film is formed on an inner
4 surface of said transparent plate for reflecting said S-polarized
5 light.

1 10. A head-up display system according to claim 1, wherein,
2 when said P-polarized light is incident on said transparent
3 plate, a semi-transparent reflective film is formed on an outer
4 surface of said transparent plate for reflecting a light
5 transmitted through said transparent plate.

1 11. A head-up display system according to claim 1, wherein
2 said transparent plate is a laminated glass comprising inner

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3 and outer glass plates bonded together by an interlayer film
4 therebetween.

1 12. A head-up display system according to claim 11, further
2 comprising an optical rotatory film for rotating a polarization
3 direction of a light transmitted through said transparent plate,
4 by an angle of 90 degrees, said optical rotatory film being
5 interposed between said inner and outer glass plates.

1 13. A head-up display system according to claim 12,
2 wherein, when said S-polarized light is incident on said
3 transparent plate, a semi-transparent reflective film is formed
4 on an inner exposed surface of said inner glass plate for
5 reflecting said S-polarized light.

1 14. A head-up display system according to claim 12,
2 wherein, when said P-polarized light is incident on said
3 transparent plate, a semi-transparent reflective film is formed
4 on an outer exposed surface of said outer glass plate for
5 reflecting a light transmitted through said laminated glass.

1 15. A head-up display system according to claim 1, wherein
2 said transparent plate is a single transparent plate,
3 wherein an optical rotatory film for rotating a
4 polarization direction of said S-polarized light by an angle of 90
5 degrees is formed on an inner surface of said transparent plate,
6 wherein a semi-transparent reflective film is formed on
7 said optical rotatory film for reflecting a part of said
8 S-polarized light incident on said semi-transparent reflective
9 film.

1 16. A head-up display system comprising:
2 a transparent plate;

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3 a liquid crystal display for generating a display light of
4 information; and

5 a $\lambda/2$ film placed on a display panel of said liquid
6 crystal display such that said display light is changed into
7 S-polarized light or P-polarized light and that said S-polarized
8 light or said P-polarized light is incident on said transparent
9 plate.

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